

WHAT IS CLAIMED IS:

1. A differential comprising:

a differential housing:

a torque transmission member supported to the
5 differential housing for rotating relative to the differential
housing; and

a clutch system configured to interconnect between the
torque transmission member and the differential housing for
transmitting a drive torque therebetween.

10 2. A differential according to claim 1, further comprising:

a support member located between the torque transmission
member and the differential housing, the support member
supporting the torque transmission member to the differential
15 housing for rotation.

3. A differential according to claim 2,

wherein the support member and the clutch system are
axially arranged each other.

20 4. A differential according to claim 1,

wherein the torque transmission member has a gear located
in radial alignment with the support member.

25 5. A differential according to claim 2,

wherein the clutch system comprises:

a first clutch provided between the torque transmission
member and the differential housing; and

an actuator for operating the first clutch,

30 wherein the first clutch is located axially between the
support member and the actuator.

6. A differential according to claim 2,

35 wherein the support member supports at least two points
of the torque transmission member.

7. A differential according to claim 5,
wherein the torque transmission member axially has an
end,

the actuator is located at the end, and

the first clutch is located axially back from the end.

8. A differential according to claim 2,
wherein the support member is located in alignment with
the clutch system.

9. A differential according to claim 5,
wherein the actuator comprises:
a second clutch for transmitting a drive torque from the
torque transmission member; and

a converter provided between the first and second
clutches for converting a drive torque to a thrust force and
for engaging the first clutch.

10. A differential according to claim 9,
wherein the actuator further comprising:
an electromagnet system for engaging the second clutch.

11. A differential according to claim 10,
wherein the electromagnetic system comprising:
a core;

a rotor located between the core and the second clutch
for magnetically conducting therebetween, the rotor being
supported on the differential housing.

12. A differential according to claim 9,
wherein the converter comprises: a cam mechanism
configured to be operated by the second clutch.

13. A differential according to claim 9,
wherein the second clutch comprises:
first clutch plates connected the torque transmission

member, the first clutch plates being spaced each other; and second plates connected to the converter, respective second clutch plates being slidably interposed between respective first clutch plates.

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14. A differential according to claim 13,
wherein the first clutch plates are spaced radially from the converter.

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15. A differential according to claim 13,
wherein the second clutch plates are spaced radially from the torque transmission member.

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16. A differential according to claim 10,
wherein the electromagnet system further comprises:
an armature configured to be attracted for pressing and engaging with the second clutch, the armature being spaced radially from the torque transmission member.

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17. A differential according to claim 11,
wherein the rotor has openings each extending within an angular range, the openings being angularly spaced from each other and being located radially inward of a coil of the electromagnet system.

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18. A differential according to claim 17,
wherein the openings face a core of the electromagnet system.

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19. A differential according to claim 2,
wherein the support member comprises:
bearings arranged in axial alignment with each other.

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20. A differential system comprises:
a transmission mechanism for transmitting a drive torque;
a differential;

a torque transmission member being supported to the differential for rotating relative to the differential; and

a clutch system configured to interconnect between the torque transmission member and the differential for transmitting a drive torque between the transmission mechanism and the differential.

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